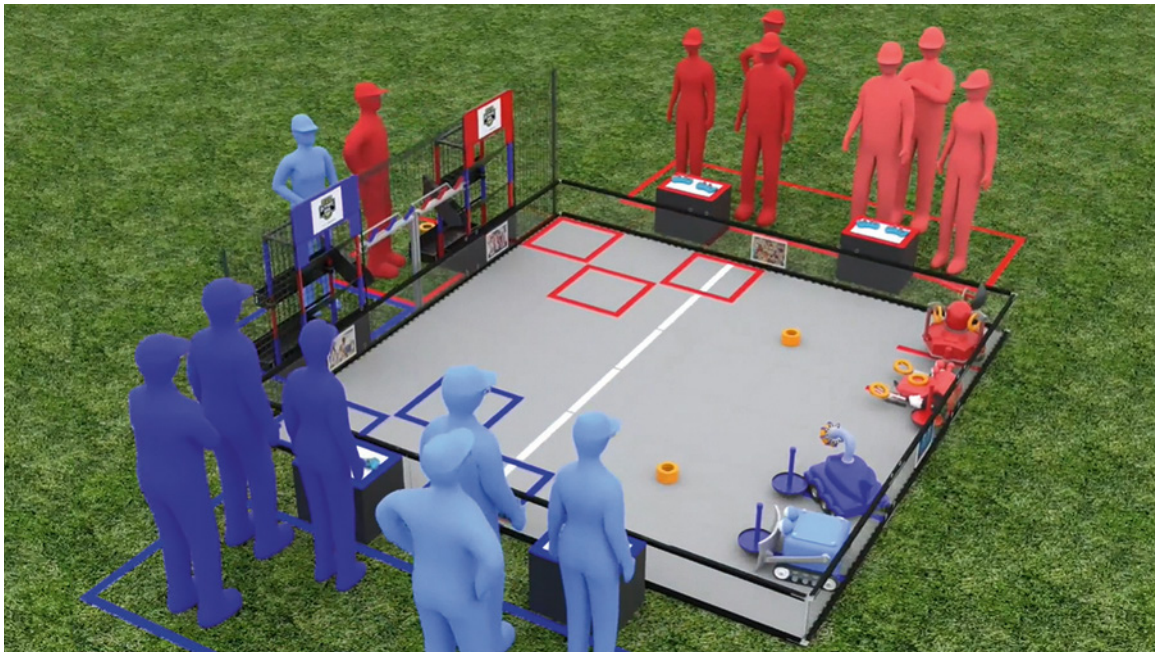




In **ULTIMATE GOALSM** presented by Qualcomm, alliances of two or three teams each compete with their robots on the 12' x 12' square playing field. Separated by the Launch Line, the Launch Zone is located toward the audience. Within the Launch Zone are two red and two blue start lines where robots start the match with an Alliance-specific Wobble Goal. Also, within the Launch Zone is the Starter Stack Area. There are six Target Zone Goals, three red and three blue. At one end of the field are two Tower Goals each containing three Alliance-specific Goals. Between the Tower Goals are the Power Shots, with three Power Shot Targets for the red alliance, and three for the blue alliance. The Drop Zone is located outside of the field toward the audience. There are 20 alliance-neutral rings used for scoring.

Prior to the start of a Match, robots must pre-load exactly one Wobble Goal and optionally pre-load up to three Rings. Robots must be touching the front field border wall and must be parked on top of their Alliance-specific Start Line. The alliance with the highest score at the end of the match wins.



PRESENTED BY
Qualcomm

SCORING PERIODS

0:30 Autonomous: Robots operate using only pre-programmed instructions and sensor inputs. Alliances earn points by:

Wobble Goal Delivered to correct Target Zone	15 points
Parked in Launch Line	5 points
Launched Rings into Alliance-Specific Goals	
<i>Low</i>	3 points
<i>Medium</i>	6 points
<i>High</i>	12 points
Power Shot Targets Launched Back	15 points/Target

2:00 Driver-Controlled: A human player may drive and operate their robot from the drive station and score points by:

Launched Rings into Alliance-Specific Goals	
<i>Low</i>	2 points
<i>Medium</i>	4 points
<i>High</i>	6 points

0:30 End Game: The final 30 seconds of the Driver-Controlled period features new scoring opportunities for the robots. In addition to the Driver-Controlled period tasks, Alliances earn points by:

Wobble Goal Delivered	
<i>Start Line</i>	5 points
<i>Drop Zone</i>	20 points
Rings Supported by Wobble Goal	5 points each
Power Shot Targets Launched Back	15 points/Target

WELCOME SPECTATORS!

FIRST® is a robotics community that prepares young people for the future. The world's leading youth-serving nonprofit advancing STEM education outcomes, *FIRST* designs mentor-guided research and robotics programs for kids from pre-kindergarten through high school. Boosted by a global support system of mentors, coaches, volunteers, alumni, and sponsors, teams conduct research, fundraise, design, and build robots of their creation. For 30 years, students from all walks of life have developed self-confidence in STEM, meaningful friendships, and valuable, real-world skills through *FIRST* that open pathways and help young people build a better future.

AGES
4-16*



THE CHALLENGE

Through a guided, global robotics program, students are introduced to STEM learning and exploration at an early age. Children can begin with Discover (ages 4-6) and progress through Explore (ages 6-10) and Challenge (ages 9-16*), or join at any division based on their age or grade level.

THE OUTCOME

Students gain real-world problem-solving experiences that inspire them to experiment and grow their critical thinking, coding, and design skills while building confidence, growing their knowledge, and developing habits of learning.

*Ages vary by country

AGES
12-18



THE CHALLENGE

Teams of students design, build, code, and operate Android-smartphone-controlled robots in competition with other teams. Students are encouraged to create team brands and be an ambassador for *FIRST* and STEM in their communities.

THE OUTCOME

While developing their STEM skills and mastering engineering principles, students learn the value of persistence, innovation, teamwork, and the engineering design process. High school students are eligible to apply for more than \$80 million in scholarships from colleges, universities, and technical programs.

AGES
14-18



THE CHALLENGE

Under strict rules, with limited time and resources, high school teams use sophisticated technology to build and program industrial-size robots for a challenging field game. Each team develops a brand, raises funds to meet its goals, and works to promote STEM in the local community.

THE OUTCOME

As students learn real-world engineering concepts, they build their confidence and workforce skills, and connect with professional team mentors and sponsors who can help them succeed. Plus, they can apply for more than \$80 million in college, university, and technical program scholarships.



At the heart of *FIRST* are its Core Values, which emphasize the contributions of others, friendly sportsmanship, teamwork, learning, and community involvement. These include: *Gracious Professionalism*® – Respect for others, being a good sport, and sharing what you learn. *Coopertition*® – Competing hard, but also helping the other teams.

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